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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/559,584

12/02/2005

Jonathan W. Roberts

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2701

23405

7590

05/27/2009

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EXAMINER

STEELE, JENNIFER A

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

05/27/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/559,584	<b>Applicant(s)</b> ROBERTS ET AL.	
	<b>Examiner</b> JENNIFER STEELE	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claim 29-43 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 29 describes an insulating material with the property of thermoconductivity. The specification teaches the insulating material has the property of increased thermal conductivity.
2. Claim 43 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 43 recites the limitation that “the material comprises a greater mica content for a given material thickness compared to a material comprising a non-twist free glass yarn”. The claim limitation is described in relative terms that renders the claim indefinite and one of ordinary skill in the art would not be able to compare the present invention percentage of mica to another invention's percentage of mica on the basis of the limitation described in claim 43.

### ***Rule 132 Affidavit***

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3. The Affidavit under 37 CFR 1.132 filed 3/11/2009 is insufficient to overcome the rejection of claim 29-46 based upon Roberts in view of Scari as set forth in the last Office action because:

a. Applicant's evidence is not commensurate with the scope of the claims. Applicant's claim 1 is claiming superior tensile strength, an increase in thermal conductivity and a reduced dissipation factor. Applicant presents evidence of improved or superior properties, however it is not clear how these properties are equated with the claimed properties. The evidence limits the mica tape to specific thickness and testing conditions that are not claimed. For example:

- i. The evidence of item 26 shows a thermocycle test with number of cycles vs. temperature level. The Profab (claimed invention) has improved results for these properties but this is not related to the claimed properties.
- ii. The evidence of item 29 shows the relationship between relative frequency and tape thickness. The Porofab tape has an average thickness less than the standard and has equal properties of relative frequency. But the chart is plotting tape thickness also. It is not clear how the Profab tape has improved properties and these properties are not claimed and the tape thickness is not claimed.
- iii. The breakdown voltage of the Porofab is superior to the standard, however this property is not claimed.

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- iv. Item 32 presents a chart of results for thermal conductivity (W/mK) and TTC (W/m<sup>2</sup>K) (TTC is not defined but based on the units it is a measure of thermal conductivity). The results show an improvement for the Porofab over the standard tape but the evidence must be commensurate with the scope of the claimed range. Applicant has claimed an increase in thermal conductivity.
- b. Applicant's claim 44 is claiming the wire is rated for 450°C and Applicant's claim 45 is claiming the wire is rated for 1100°C. Applicant's evidence does not show the wire is rated for these temperatures and therefore Applicant's evidence is not commensurate with the scope of the claims. While item 19 states that a significantly lower dissipation factor and an operation temperature of 450-1100°C, the evidence does not show this relationship and unexpected result. Evidence is required to encompass the full range of the claimed invention.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**4. Claim 29-33 and 35-46 rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (US 4,704,322) in view of Scari et al (US 5,792,713).**

Roberts teaches a mica tape for use in wrapping electrically conductive substrates comprised of a scrim or sheet backing supports of glass cloth with a layer of mica which may be in the form of mica paper, mica flakes, flake paper or splittings (col. 2, lines 26-45). Roberts teaches glass cloth that can be woven or braided cloth that are conventional and known. Roberts differs from the current application and does not teach that the glass filaments are a twist-free glass yarn.

Roberts teaches the tape will have low dissipation factor, high flexural strength, excellent shelf life and improved water resistance (col. 1, lines 59-63). Roberts teaches the mica has higher thermal properties and coefficient of thermal expansion (col. 2, lines 40-42). Roberts teaches the tape has improved dissipation factor (col. 6 Tables 3). Roberts teaches the tape has flexural strength in psi. however does not teach the strength as tensile strength.

Roberts teaches an electrical insulating tape with the desired properties as claimed and one of ordinary skill in the art could have optimized the structure motivated to produce a tape with the claimed properties.

Scari teaches a woven glass cloth for reinforcement for paper or resinous articles made of continuous glass filament warp yarns and weft yarns (ABST). Scari teaches a

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zero-twist yarn made of continuous glass filaments. Scari teaches the zero twist yarn provides advantages over prior art twisted filaments and allows for miniaturization, improved reinforcement of resinous impregnated glass reinforced articles (col. 7, lines 50-68).

It would have been obvious to one of ordinary skill in the art to substitute the woven glass cloth of Roberts with a twist-free glass cloth of Scari motivated to reduce the thickness of the tape.

As to claim 30, Roberts teaches a woven glass fiber cloth layer of a thickness of 0.5 mils to 10 mils (col. 2, lines 26-34), which is equal to 0.013 mm to 0.254 mm and in the claimed range.

As to claim 31, Roberts teaches a mica layer of a thickness of 2-10 mil (col. 2, lines 44) which is equal to 0.05 to 0.254 mm and in the claimed range.

As to claim 32 and 33, Roberts teaches a mica tape wherein the resin is a thermosetting epoxy resin (col. 3, lines 6-9).

As to claim 35-36 and 39-40, Roberts teaches the epoxy resin is present in the amount of about 20-50% by weight of the total composite (col. 2, lines 56-60). While Roberts does not teach an amount of 18%, Roberts teaches about 20% and 18% could be considered about 20% and it would have been obvious to try a lesser amount. Roberts teaches that the amount of resin required can vary depending on the type of mica used and the final processing properties desires.

As to claim 37 and 38, Roberts teaches an accelerator of phenolic novolac accelerator of an alkoxy titanate (col. 3).

As to claim 41, Roberts teaches the product is in the form of a tape.

As to claim 42, Roberts differs from the current application and does not teach twist free glass yarn. Scari teaches a zero-twist yarn made of continuous glass filaments. Scari teaches the zero twist yarn provides advantages over prior art twisted filaments and allows for miniaturization, improved reinforcement of resinous impregnated glass reinforced articles (col. 7, lines 50-68).

It would have been obvious to one of ordinary skill in the art to substitute the woven glass cloth of Roberts with a twist-free glass cloth of Scari motivated to reduce the thickness of the tape.

As to claim 44 and 45, Roberts in view of Scari teaches the materials, structure and process of making a mica tape that is same as the claimed invention and it is presumed that the mica tape has the property of insulating a wire up to an operation temperature of 450-1100°C.

**5. Claim 34 rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (US 4,704,322) in view of Scari et al (US 5,792,713) in further view of Andres et al (US 4,034,153).** Roberts in view of Scari differs from the current application and does not teach a silicone resin. Andres teaches an electrical cable with a mica insulating tape that is impregnated with a silicone resin as silicone remains flexible after curing (claim 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a silicone resin in the mica tape motivated to improve the properties of flexibility of the tape.



***Response to Arguments***

6. Applicant canceled claims 1-28 and presented new claims 29-46. The previous 35 USC 112 2<sup>nd</sup> paragraph rejection over claims 23-25 is amended to rejected claim 43 which describes the same feature as claims 23-25.

7. Applicant's amendments and arguments filed 3/11/209 have been fully considered but they are not persuasive. Applicant submitted Rule 1.132 Affidavit to provide evidence of unexpected results of the claimed invention over the 35 USC 103 rejection over Roberts in view of Scari. As stated above, Applicant's evidence is not commensurate with the scope of the claims as presented. While the evidence appears to show that the Porofab product has improved properties over prior art with regular woven glass fibers versus twist free glass, the evidence must present data that encompasses the claimed ranges. Applicant has not claimed ranges of the improved properties (claim 1) and claims ranges of temperature operation (claims 44 and 45) but provides no evidence in these temperature ranges.

Applicant's claimed invention directed to an insulating tape using twist free glass provides a tape that can be thinner and incorporate less resin. However, Applicant's evidence that the advantages, unexpected results, of this structure is not persuasive. Providing evidence of unexpected results must encompass the claimed structure, thickness of the tape, composition of the tape as well as the claimed range of properties of the tape. The evidence submitted in the affidavit shows the invention has improved properties, but these properties are not claimed.

The 35 USC 103 rejection over Roberts in view of Scari is revised and maintained to address the amended claims submitted.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./  
Examiner, Art Unit 1794

/Elizabeth M. Cole/  
Primary Examiner, Art Unit 1794

5/20/2009